FOR PRIVATE CIRCULATION.

REPORT

ON THE

ANTHRACITE COAL MINES

AT

BANFF STATION, CANADIAN PACIFIC RAILWAY,

DISTRICT OF ALBERTA,

NORTH-WEST TERRITORY OF CANADA.

OTTAWA:
PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.
1885.

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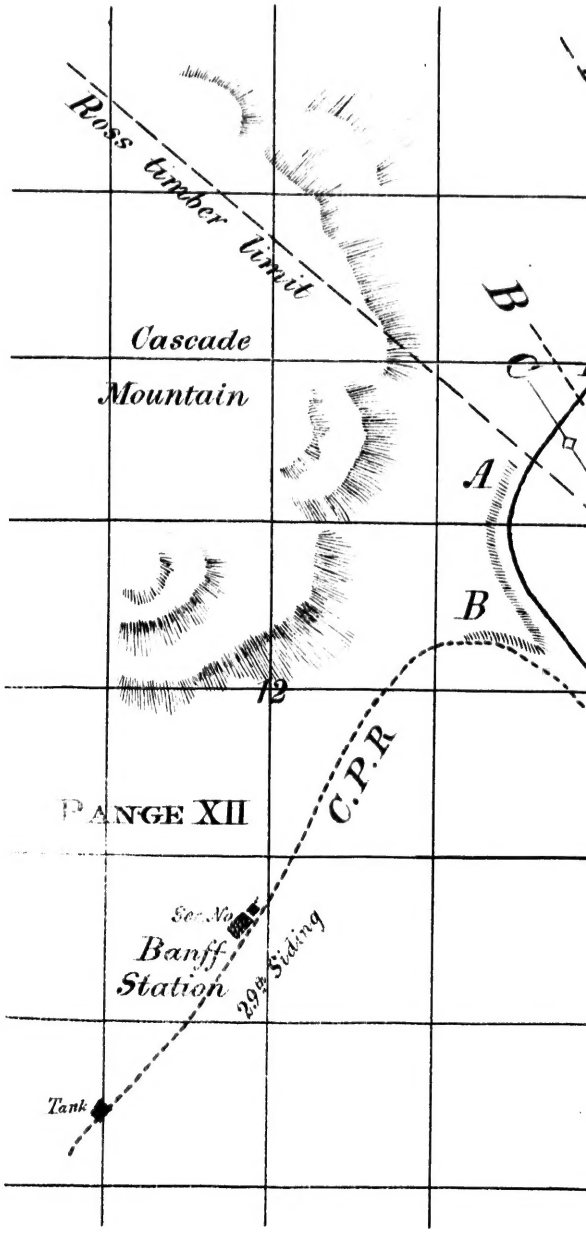
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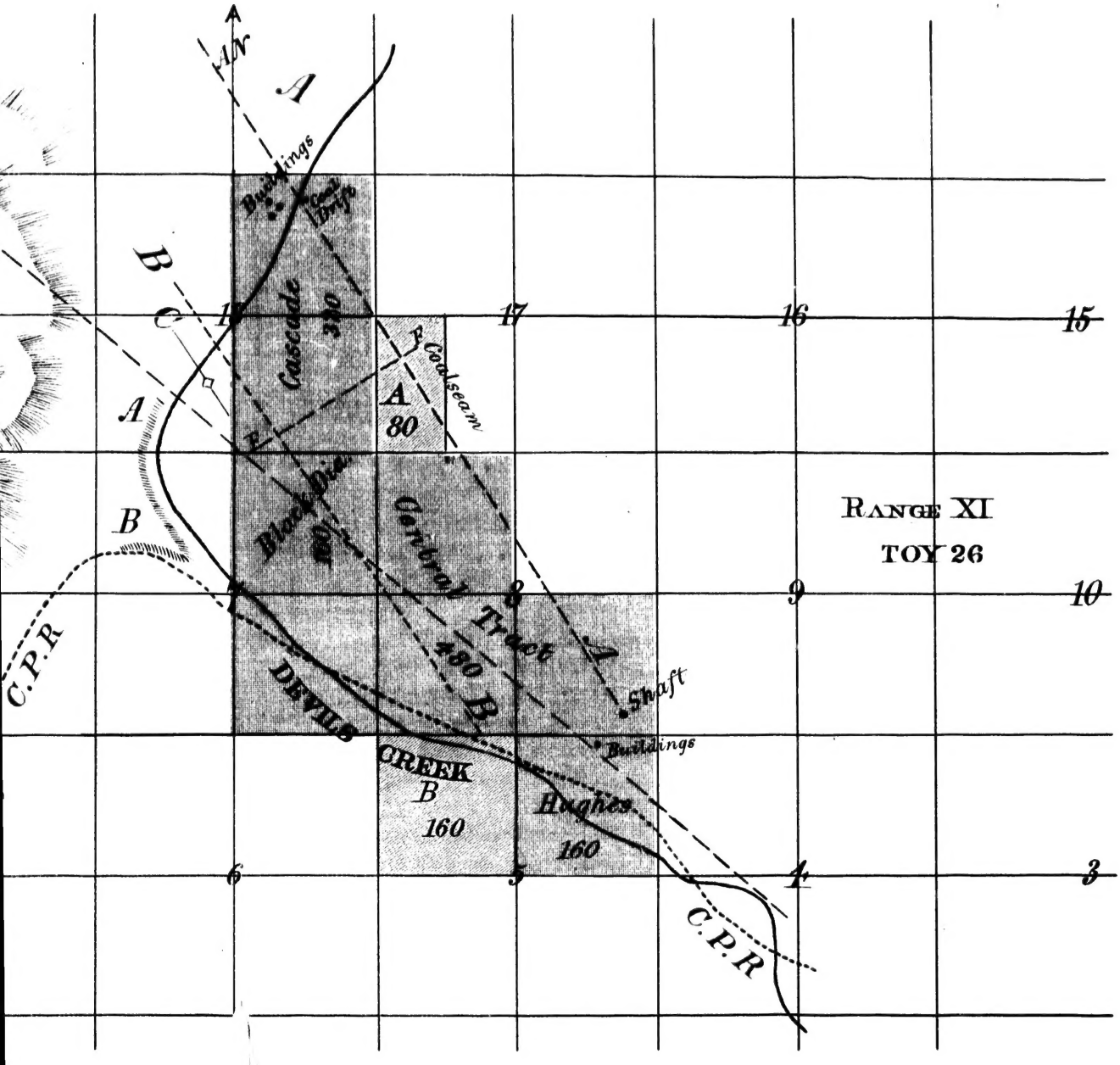
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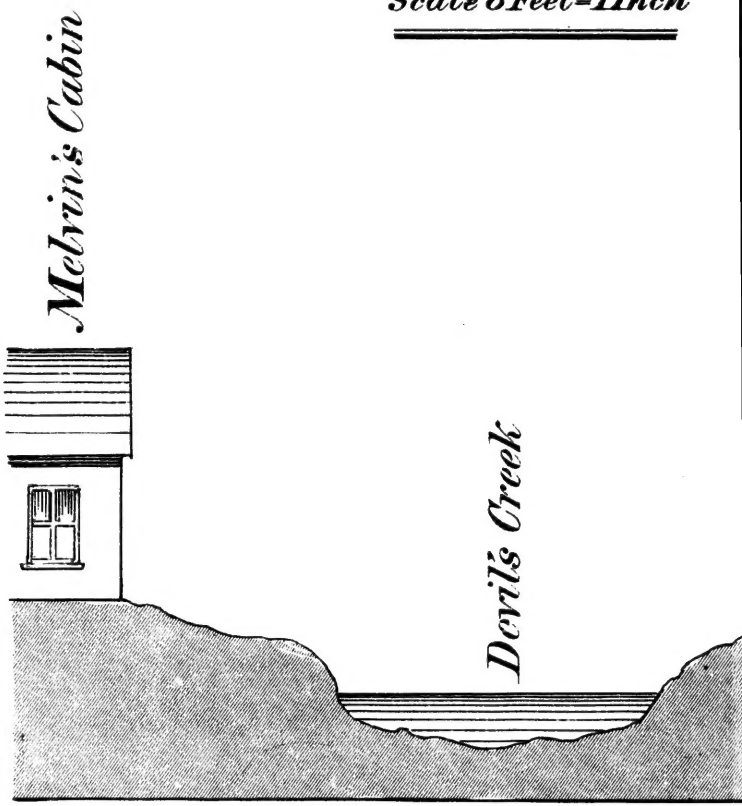

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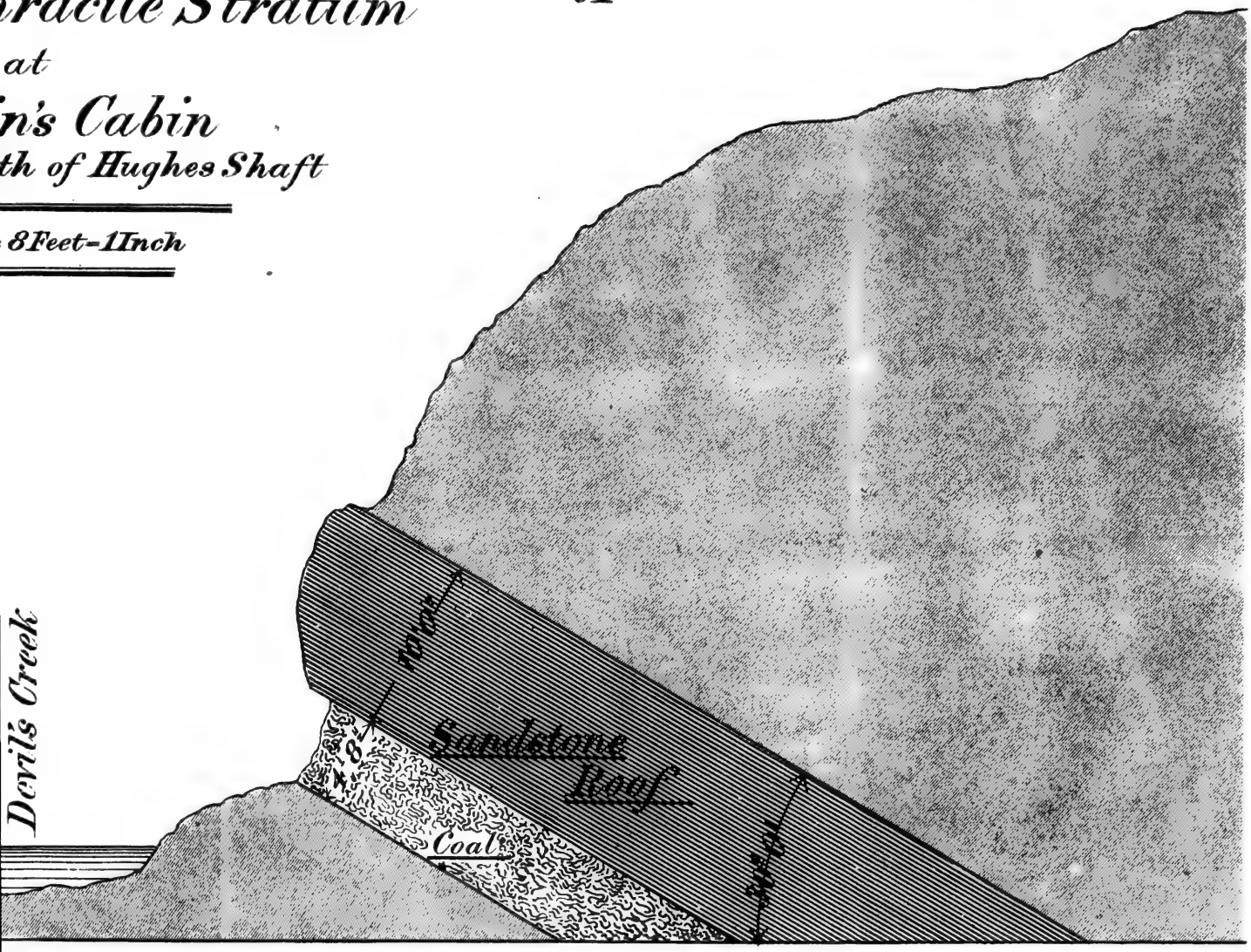

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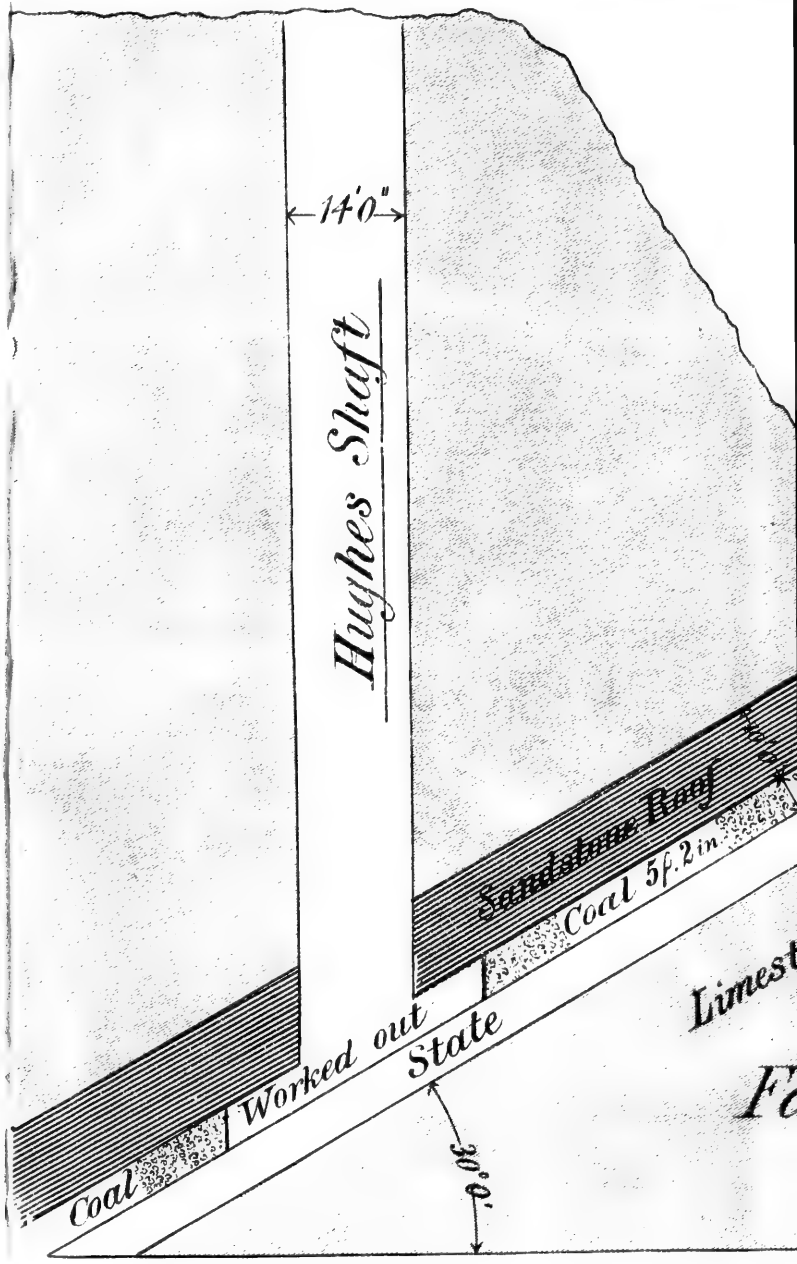
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Cascade Anthracite Stratum

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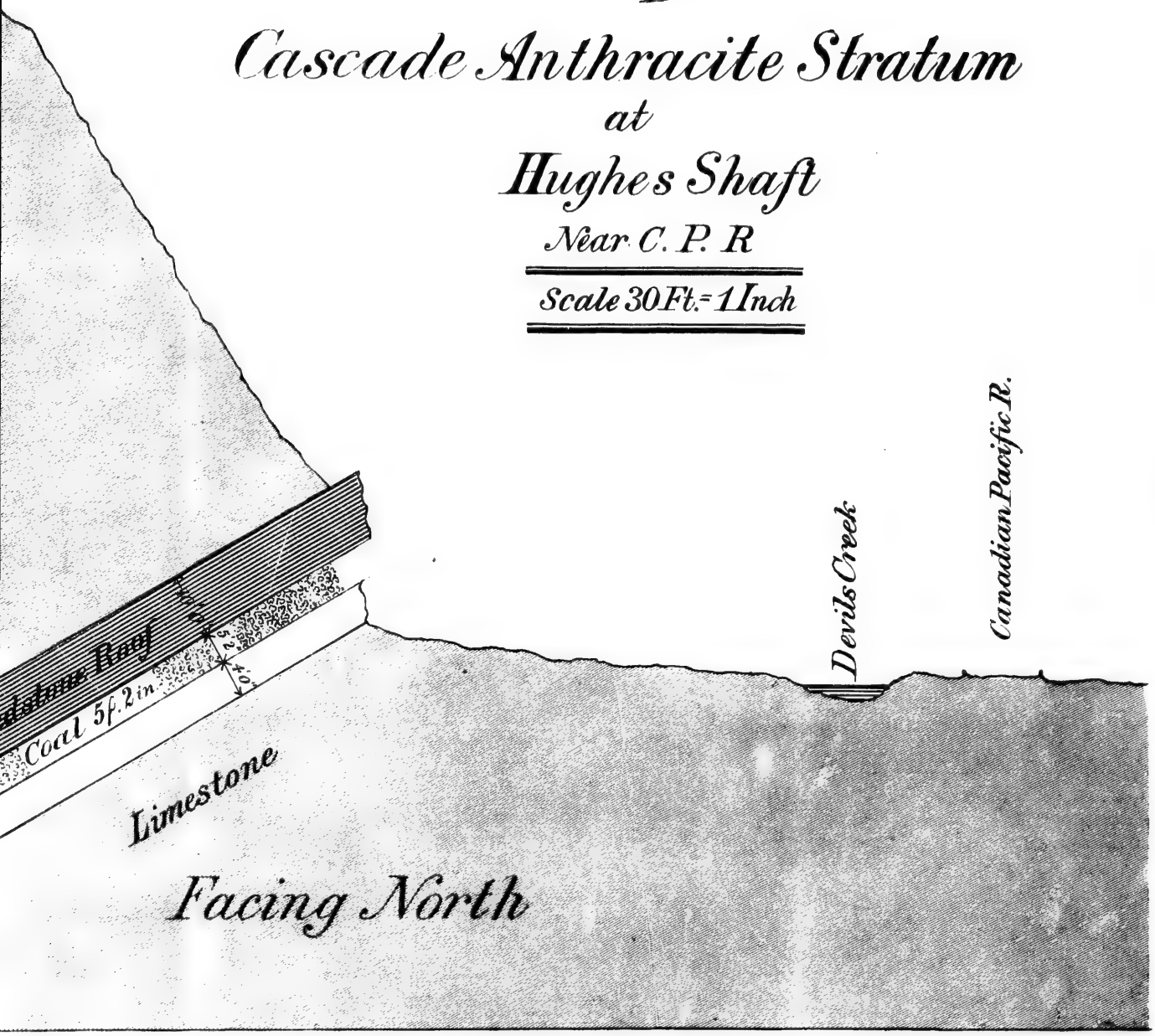

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REPORT

ON THE

ANTHRACITE COAL MINES AT BANFF STATION,

CANADIAN PACIFIC RAILWAY,

NORTH-WEST TERRITORY OF CANADA.

McLeod Stewart, Esq.,
Union Chambers,
Ottawa, Ont.

Dear Sir,

The following pages present a condensed description of the recently discovered Anthracite Coal field in the vicinity of Cascade Mountain, 75 miles west of Calgary, in the Province of Alberta, on the line of the Canadian Pacific Railway. The two diagrams show the thickness of the anthracite coal strata, its position and proximity to the track of the Canadian Pacific Railway.

The plat represents the anthracite coal lands, with lines of outcrops. These lands, 1,360 acres, were selected after careful examination, and contain all the available and valuable anthracite of this remarkable deposit.

The accompanying letters of analyses and testimonials of eminent chemists and engineers, fully corroborate my statements of the great value of this new field of anthracite.

Respectfully submitted.

C. D. WILBER,
Inspector of Mines and Mining Lands.
Sherman House,
Chicago, Ills.

The foregoing plat represents the land traversed by the anthracite coal strata in the order of their occurence, A, B, C, and also their relation to the route of the Canadian Pacific Railway, which passes within a few rods of

the Hughes shaft, now open. Side tracks can be easily made to the level of the creek below the shaft.

The two sketches, "A" and "B," are three miles apart, and are connected by the visible outcrop of sandstone, 10 to 15 feet in thickness, which is everywhere the permanent roof-rock of this seam of coal. It is the outcrop of this sandstone rock which has determined the course of the seam of coal through the property that has been taken up by yourself and associates. Hence you will see the tests that have been suggested are merely excavations or drillings through the sandstone rock at any place near the outcrop at right angles to the dip of the coal seam which, as before stated, is 30 degrees. The drawing marked "A" at Melvin's Cabin is farthest from the railroad, and is quite difficult of access on account of high water, but as the coal was first discovered here, so it was natural in this place to commence mining operations.

About 500 tons have been taken out at this point, enough to settle the permanence of the vein of coal, and sufficient in quantity to prove its quality and value.

My examination of the several tracts of land described in the accompanying plats, occupied portions of July and August of the year 1884.

During the survey I found that the anthracite seam or vein had been correctly reported by Dr. Geo. M. Dawson, Assistant Director Geological Survey, as regards thickness and quality. It measures at the farther opening, 4 feet and 8 inches in thickness, having increased from its outcrop to this width, from 4 feet. It is 5 feet and 2 inches in thickness at the Black Diamond or Hughes Mine, nearly three miles distant. This stratum of anthracite may be therefore regarded as having 5 feet in average thickness, with but little, if any, variation.

It does not lie horizontal, like the coal seams in an undisturbed region, but is inclined toward the south-west at an angle of thirty degrees. The line of outcrop from the Cascade Mine to the Hughes Mine is a perfectly straight line, as seen at intervals of a few rods, in the projection or outcrop of sandstone from 30 to 50 feet in thickness, which everywhere forms the cover or roof of the anthracite seam.

There is no question whatever in regard to the rank or class of this seam of coal. It is a vein or stratum of anthracite. It was in ages past a cretaceous coal seam, which has been altered or changed into anthracite by

the action of the same or similar forces which, in Pennsylvania,—the Lehigh and Scranton and Lakawana districts,—have changed that ancient bituminous field into anthracite, as we now find it.

I have made a careful estimate of the amount of anthracite within easy mining distance on the stratum from A to A. This estimate is based upon the customary unit measure, viz: one cubic yard is equal to one ton of coal. In this anthracite stratum there are 3 miles in length of an average 5 feet seam or stratum, with an incline of 30 degrees, everywhere accompanied with good roof and bottom.

From a simple calculation it will be seen that every 3 feet of the stratum will give 7,392 tons; and 300 feet will give 100 times as much, or 739,000 tons. A depth of 100 feet more will give one-third more, or 985,000 tons. At a trifle over 400 feet of depth, therefore, there are 1,000,000 tons of anthracite coal. There can be no doubt of the great value of this deposit of coal.

It will yield a constantly increasing revenue to its owners from its customers, 1,000 miles distant.

In addition to this well defined coal seam, 3 miles in length, with an average of 5 feet in thickness, are two other, or additional, anthracite strata or seams, located upon this property. They are marked upon the accompanying plat, "B" and "C" respectively. Anthracite strata "B" has an outcrop of 6 feet in thickness. The outcrop at "C" is over 7 feet in thickness.

These outcrops are a fourth of one mile apart, downward or southwest from the well defined seam above described. They also run parallel with it; they have also a similar covering, or roof-rock, of sandstone, and have all the appearance of reliable strata of anthracite coal, and are traced upon the map from the respective outcrops, "B" & "C," in the same direction. These larger strata or veins of anthracite will, of course, yield a much larger tonnage than the 5 feet vein or seam already described. Taking the three veins into consideration, and applying the same measures to them as are used in measuring anthracite coal seams in the Lehigh and Lackawana regions, it is a fair judgment, that this property has already in sight from five millions to ten millions of good anthracite coal.

In making the above estimate, we have not considered a depth greater than 400 feet, while it is common for the anthracite of Pennsylvania to be

mined at a depth of a 1,000 feet ; in short, there are no limits to profitable mining in this direction. The extra steam required to hoist a hundred thousand tons of coal 400 feet, can, with a very trifling addition of force or cost, hoist the same amount 800 feet, or even 1,000 feet. The vast amount of anthracite coal comprised in this locality forms a reliable basis for one of the largest anthracite collieries in America, and will insure a large return for many years upon the par value of its capital stock.

The cost of mining anthracite at the Cascade Mines, including all expense of keeping the mines in good order, including the delivery upon the railway side track, will not exceed $1.50 per ton. The price of anthracite in Winnipeg is from $12 to $14 per ton. It is not probable that competition will reduce it below $11 per ton, because all other anthracite coal in the Winnipeg market must come from Eastern Pennsylvania and bear the cost of nearly 2,000 miles of transit, breaking bulk twice, at Buffalo and Port Arthur. If sent by continuous rail from Pennsylvania, via Chicago and St. Paul to Winnipeg, the cost will be still greater, so that the permanent price of anthracite coal at Winnipeg may be placed at an average of $13 per ton. The City of Winnipeg now contains 30,000 inhabitants, and may be relied upon as a steady annual market for from 10,000 to 15,000 tons of anthracite.

The leading towns west of Winnipeg, viz : Portage La Prairie, Brandon, Regina, Broadview, Moosejaw, Maple Creek, Medicine Hat, &c., &c., &c., already comprising several thousand inhabitants, can also be relied upon as a market for many thousands of anthracite coal per year. Calgary, the enterprising Capital town of Alberta, will also afford a large market for this coal. Add to this the hundred smaller towns and stations between Winnipeg on the east, and the Cascade Anthracite Mines on the west, including railroad section towns, railway offices, eating houses, &c., we shall find the demand for anthracite largely increased. This annual tonnage or output of anthracite will be greatly augmented on the extension of the Canadian Pacific Railroad to the Pacific Ocean at Port Moody, distance 500 miles from the Cascade Mines. Still another demand, not less in importance and constantly increasing, will be the supply of anthracite for the farming population that are now rapidly occupying the vast region of country adjacent to, and supplied from the Canadian Pacific Railway.

The rate of immigration and occupation will increase in a very rapid ratio now that the resources of this vast domain are being known and

appreciated, and advertised to the millions who are preparing to make homes in the new North-West.

It is proper here to state, in regard to the service, or economy of anthracite coal, that one ton of Cascade anthracite will do twice as much work, or in other words, give out twice as much heat, as a ton of the common lignite, or cretaceous coal of the plains.

This fact can be ascertained by direct experiment in the same manner as we ascertain that a ton of this anthracite is equal to three cords of wood. As soon as these facts become generally known there will be greatly increased demands for the Cascade anthracite over all other coals of the North-West, based upon economy, to say nothing of the special advantages of having a clean, smokeless fuel. The Cascade anthracite coal will be distributed westward along the extension of the Canadian Pacific Railway to the Pacific Coast, a distance not exceeding 500 miles.

With uniform rates, this anthracite will be in great demand in the larger towns of British Columbia, namely, Victoria, now a city of 10,000 inhabitants, Vancouver, the new terminal city of the Canadian Pacific Railway, to say nothing of the ordinary railway stations. It is 439 miles from the Cascade Mines to the Northern Pacific R. R. by the Canadian Pacific R. R. and the Columbia River.

It should be here noted that the war steamers of both the Royal and American Navies use anthracite coal, which can be provided on the Pacific coast at the terminus of the C P. Railway.

Anthracite coal is now sold in Victoria for $20 per ton. The demand for anthracite will rapidly increase with the supply, especially at such reduced rates as can be afforded from the Cascade Mines. At $12 per ton or even $15 per ton, 50,000 tons of anthracite from these mines would annually be sold for consumption in the towns of the Pacific coast. There being no other large deposit of anthracite coal either in the west or north-west, the Cascade anthracite will also find a large market in San Francisco.

The small patch of semi-anthracite in Colorado at Crested Butte, on the Denver and Rio Grand Railway, readily finds market for 50,000 tons annually, both in Salt Lake City and Denver, selling for $10 per ton, or twice the price per ton of best bituminous coal.

The freight charges on anthracite coal, nearly 3,000 miles to San

Francisco from Pennsylvania, can be modified by water transportation in ships around Cape Horn. The Cascade anthracite on the other hand, can be put into the hold of ships or steamers for San Francisco and other Pacific seaport cities at the Pacific terminus, 500 miles from the mines. The fortunate or advantageous situation or location of this vast body of anthracite, so far from competition, 2,500 miles from the Pennsylvania anthracite, will permit a constant profit over and above all expenses, of nearly $5 per ton.

In a recent interview with Dr. Geo. M. Dawson, Canadian Geological Survey, he stated to me that his researches in Alberta and British Columbia, for the year 1884, still more strongly confirmed his position in the letter accompanying this report, namely, that this is the main body of anthracite in the North-West.

I have not considered the railway use of anthracite for locomotives, but I have no doubt that it will be used on all engines of the Canadian Pacific Railway west of Winnipeg, as soon as the fire-boxes or furnaces can be adapted to its use. The railroad economy of burning anthracite coal has already been sufficiently demonstrated. The amount of anthracite coal necessary to supply the locomotives for 1,300 miles, with an increasing traffic, it is not difficult to estimate, because each locomotive consumes from 4 to 5 tons of coal per day.

Taking the foregoing facts into consideration, the annual output of the Cascade anthracite coal mines, after the completion of the Canadian Pacific Railway, can be safely relied upon, from 100,000 to 150,000 tons per annum. This annual demand will constantly enlarge with the settlement and growth of the country, until the mining and distribution of anthracite coal from the mines will constitute the leading mining interests of the North-West.

C. D. WILBER,
Inspector of Mines and Mining Lands.

LETTERS OF GEO. M. DAWSON, L.L.D., F.G.S., ASSISTANT DIRECTOR GEOLOGICAL SURVEY.

GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA,
MUSEUM AND OFFICE SUSSEX ST.,
OTTAWA, 23rd April, 1884.

McLEOD STEWART, Esq.,
Ottawa, Ont.

DEAR SIR,—Referring to our conversation of yesterday in regard to the Cascade coal district, Bow River Pass, I may say that this locality was examined by me last autumn; but as its investigation is as yet incomplete, it has not been described in published reports.

The coal bearing rocks here form a trough of about two miles in width, and occupy a valley which is bounded at the sides by the older limestone strata, of which the mountains in this vicinity are composed. The coal bearing rocks lie at high angles. As a consequence of the disturbance which they have undergone, the coal has assumed the character of anthracite of excellent quality. The seam had been uncovered at the point on the bank of Cascade River by C. W. Moberly, C. E., at the time of my visit.

It showed there a little less than 5 feet thickness of clear coal and dipped S. 35 degrees W. at an angle of 35 degrees, while the strike of the rocks in all this part of the district is extremely uniform.

As a general result of the preliminary examination of this coal district, I may state that I have little doubt that it possesses considerable importance, and its situation on the main line of the Canadian Pacific Railway is very favorable to its development. So far as yet known it is the only deposit of anthracite coal in any part of the North-West.

There is no probability of coal of this kind being found on the great plains, and though additional areas resembling this one may yet be found in the mountains, special means of transport would have to be provided before these could be utilized.

The analysis, of which I understand Mr. Hoffman has furnished you with a copy, is that of a specimen collected by me at the opening above referred to, and selected to represent the average quality of the seam as it occurs at that place.

Yours very truly,

GEO. M. DAWSON.

OTTAWA, ONT., 6th November, 1884.

McLEOD STEWART, ESQ.,
Ottawa.

DEAR SIR,—Since the date of your letter, 23rd of April, I have had occasion to more fully examine the anthracite deposits of Cascade River, and a report on them will shortly be prepared for publication.

The further investigation of these deposits has served to confirm the statements made in my previous letter and to strengthen my belief in the value of the coal.

The shaft which has been sunk to a small depth on the seam on the Black Diamond Company's land (over two miles from the Cascade Company's opening) shows excellent coal; and on account of the vicinity of the railway and regularity of the measures, appears to be in a position well adapted for immediate working.

Yours truly,

GEO. M. DAWSON.

LETTER FROM EDWARD JACK, C. E.

OTTAWA, April 24, 1885.

McLEOD STEWART, ESQ.,
Union Chambers.

SIR,—The anthracite from the Cascade mine near the line of the Canadian Pacific Railway, is from nearly the same geological horizon, and probably occurs under somewhat similar circumstances to those of the anthracite found in the Tertiary rocks at the Meissner, in Saxony as mentioned by Von Cotta. In several respects this coal resembles the anthracite of France, which, according to Dana, contain ordinarily from 80 to 83 per cent. of carbon.

The following analysis of French anthracites from Crookes' Metallurgy will tend further to show this coincidence.

	Common Anthracite.
Carbon	79·15
Volatile matter	7·37
Ash	13·25
	Cote d'or.
Carbon	82·60
Volatile matter	8 60
Ash	8·80
	Mals Saize.
Carbon	83·80
Volatile matter	7·50
Ash	9·50

Analysis by Hoffman :

	Cascade Mine.	
Carbon	81·14	Sample from outcrop.
Volatile Matter	10·55	
Ash	7·5[illegible]	

The chief difference being in the greater amount of volatile matter and less quantity of ash contained in the Cascade than in the French anthracite.

The color of the ash of Cascade anthracite points to its being free from iron, a very important matter, as argillaceous or siliceous ash remains pulverulent and impedes the combustion much less than the ferruginous and calcareous ash.—(Galloway treatise on fuel, 1880, page 13.)

As to white ash coals, Rogers, in his work on Iron Metallurgy, says: "This is important, for coals that have a brown or even yellowish ash will not suit so well for furnace work in consequence of their containing much larger proportions of sulphur than those which yield white ashes."

There is no fuel which for the same bulk affords such a powerful heat as anthracite, and for the purposes of metallurgy, Crookes says that it yields iron of better quality than mineral coal or coke.

According to J. M. Hartman in the Journal of the Iron and Steel Institute for 1883, page 261, the anthracite generally used in the blast furnaces in the Lehigh and adjacent districts has the following composition:—

Carbon	80·00
Volatile Matter	3·5
Silicia	4·5
Alumina	2·6
Sesquoixide of Iron	·5
Lime	2·2
Magnesia	·2
Sulphur	2·0

This gives the same quantity of ash that the Cascade Mine coal carries, which, however, appears to be free from sulphur. Hartman finds that the volatile matter in the Lehigh coal helps combustion in the furnace.

On reference to the Report of Progress of the Geological Survey of Canada for 1882-83-84, just published, you will notice that the colarific power of the Cascade River Mine coal exceeds that of any other coal from the North-West, of which 37 specimens were tested by Dr. Hoffman.

On reference also to the valuable tables annexed to his reports, you will notice from the facts shown there that this is for all practical purposes much the best coal yet discovered in the North-West, which, from the nature of the situation and of the circumstances under which the deposit has been formed, it is not at all likely that other beds of similar character will be found occurring adjacent to the line of railway.

The coal of the plains is of a very different, as well as of inferior, quality, so that the Cascade Mines will not be apt to meet with any rivals.

Your obedient servant,

EDWARD JACK, C. E.

McLeod Stewart, Esq.,
Ottawa.

DECLARATIOM OF EDWARD HARDMAN.

I, Edward Hardman, of the City of Montreal, in the Province of Quebec and Dominion of Canada, mechanical and mining engineer, hereby state and declare as follows:—

1. That I was connected with coal mines in England from my boyhood.

2. That for the last thirty years I have been connected with the following railroads in Canada, namely: the Grand Trunk Railway, the Great Western Railway, the North Shore Railway, the Intercolonial Railway, and the Lake St. John Railway, as mechanical engineer and fuel agent.

3. That I have a thorough and intimate practical knowledge of all kinds of coal.

4. That on or about the third and fourth of the present month of August, 1885, I made a personal examination of the anthracite coal mines at or near Banff Station, on the Canadian Pacific Railway, in the North-West Territory of Canada, owned by McLeod Stewart, of Ottawa, Canada.

5 That the result of this examination confirms me in the opinion that these coal fields are true anthracite.

6. That the seams I inspected are five and six feet in width.

7. That the coal mines are most convenient to the Canadian Pacific Railway, and the coal can be laid on the cars at a very trifling cost.

8. That I am of opinion that this coal is equal, if not superior, to the best American anthracite.

9. That the quantity of said coal is unlimited, and there are several millions of tons of coal in sight which can be easily mined and with inexpensive machinery.

Dated at Chicago, in the State of Illinois, this tenth day of August, A. D., 1885.

(Signed,) EDWARD HARDMAN,

State of Illinois, } S. S.
Cook County. }

Edward Hardman, being duly sworn, deposes and says that the foregoing statement, by him signed, is true in substance and in fact.

(Signed,) EDWARD HARDMAN.

Subscribed and sworn to before me, }
this 10th day of August, 1885. }
(Signed,) David Campbell, } L. S.
Notary Public. }

LETTER FROM S. A. RICHARDS, Esq., OF CHICAGO, U. S.

Chicago, August 18th, 1885.

McLeod Stewart,
Union Chambers,
Ottawa, Canada.

Sir,—I have been using in blast furnices anthracite, bituminous and coke fuel for the last twenty-five years. I have examined the specimens of coal from your authracite mines in the North-West Territory of Canada, and consider your coal as shown by the analysis and the character of the coal itself as equal to the best American Anthracite for steam, domestic and all other purposes.

I have read the report of Professor Wilber, who is a man of the highest authority in coal matters in the United States, and have entire confidence in everything contained in his report.

Yours truly,

S. A. RICHARDS,

LETTER FROM J. H. RALSTON, Esq., MINING ENGINEER, CHICAGO.

CHICAGO, August 20th, 1885.

MY DEAR MR. STEWART,—I have read with great pleasure the report of Professor C. D. Wilber, on your anthracite coal deposits in the North-West, on the line of the Canadian Pacific Railroad, and beg to say that I have spent twenty-five years as a miner and inspector of Mineral lands and have known Professor Wilber well for twenty years, and can fully corroborate every statement he has made in his report on this most valuable anthracite deposit, knowing him as I do to be the best authority on coals in the United States, and on his statements you can place your friends in this venture as a certain success. I congratulate you, sir, on having secured so valuable a property.

Yours very truly,

(Signed), J. H. RALSTON.

(*Copy.*)

CHEMICAL LABORATORY OF YALE COLLEGE,
146 COLLEGE STREET, NEW HAVEN,
February 27th, 1885.

MR. S. J. RICHIE.

DEAR SIR,—My work has suffered such constant interruption that I have been unable to complete the analysis until now. I hope that my delay has not inconvenienced you, and that you will find the results satisfactory. The "Cascade" proves to be a free burning anthracite.

Samples from Saskatchewan coal mine near Medicine Hat, June of the year 1884, contain following moisture—

Moisture	8·60
Fixed carbon	49·70
Volatile matter	36·11
Ash	5·59
Sulphur	·69

Sample from "Cascade Coal Mines" in Bow River Valley, June, 1884, contain the following:—

Moisture	·50
Fixed carbon	87·79
Volatile matter	7·35
Ash	4·35
Sulphur	·96

Very respectfully yours,

FRANK L. SPERRY,
Chemist.

LETTER FROM HON. SENATOR MACDONALD OF BRITISH COLUMBIA.

OTTAWA, May 4th, 1885.

McLEOD STEWART, ESQ.,
Ottawa.

MY DEAR SIR,—Referring to our conversation about coal, a few days ago, I am of opinion that coal of the quality of that found in the Alberta district would take the market well along the Pacific coast as well as in British Columbia, for steam and household purposes.

The retail price of soft coal at Victoria is from $7 to $8, and at San Francisco from $8 to $10, and certainly one ton of anthracite is fully equal to two tons of soft coal. Its freedom from smoke and dirt will be a great inducement to its use for steam and domestic purposes. Hard coal sells at San Francisco from $12 to $16 and at Victoria from $20 to $22 per ton.

Yours very truly,
W. J. MACDONALD.

To McLEOD STEWART, ESQ.,
Union Chambers,
Ottawa, Ont.

J. T. DONALD, M.A.F.C.S.,
ANALYTICAL CHEMIST AND ASSAYER,
124 St. James St., Montreal.

REPORT.

Analysis of Anthracite Coal.
Estimation of general analysis.
Marks five foot seam, Cascade River, Rocky Mts.
For Alexander Mackenzie, Esq.,
Samples received May 25th.

Moisture	1.56
Ash	6.60
Volatile matter	3.24
Fixed carbon	88.60
Sulphur	3.29

The ash is of pinkish color and consists principally of silica, alunina, iron oxide with small quantities of lime, magnesia and alkalis.

(Signed,) J. T DONALD,
Professor of Chemistry in Victoria College, Montreal.

Montreal, May 30th, 1885.

LETTER OF A. MACKENZIE, ESQ., C.E. & M.E., MONTREAL.

MONTREAL, 3 DUROCHER ST.,
May 30th, 1885.

McLEOD STEWART, ESQ.,
Ottawa.

DEAR SIR,—In compliance with your request, I beg to send you results

of analyses of anthracite, samples of which were handed to me by Mr. M. while he was in Montreal. In the course of our conversation relative to the recent discovery of "anthracite" in the cretaceous rocks at Cascade River, Rocky Mountains, I was much interested with Mr. M's. account of his visit and his exploration there, and his description of the several coal seams in that vicinity. The pieces or samples which have been analyzed were said by Mr. Moberly to have been taken from the "A" or "five foot seam" and to represent a fair average of the entire seam, having been obtained from portions of it at a long distance from one another.

Being anxious to obtain some information respecting what Dr. Selwyn calls this "special development," I referred to the Report of the Geological Survey for 1882-84 just issued, and was much surprised to find that with the exception of 3 very brief allusions at pages 2, 4, 132, no further mention is made of this important coal-bed until near the end of the volume (at page 41 M.) Mr. Hoffman's analysis of the coal is given.

From its extent and importance I fully expected to have found more detailed information respecting the coal basin, and it seems all the more surprising from the fact that Drs. Selwyn and G. M. Dawson and Mr. Coste, three of the officials of the Geological Survey, appear to have visited the locality and examined the coal seams at the same time. In his report of analysis of this coal, Mr. Hoffman says: "The sample received represents an excellent fuel; it does not disintegrate on exposure to the air, is sufficiently hard and firm to bear the abrasion incident to transportation; contains but a very small percentage of hydroscopic water and by no means a large amount of inorganic matter, and possesses a high evaporative power."

The analysis of the samples handed to me by Mr. Moberly were conducted by Prof. Donald of this city, and from their results, taken in connection with other assays (of the same coal) made by other well known analysts, I think there can be no doubt whatever of the quality and value of this coal deposit.

Professor Donald's analyses are as follows: 1st Sample (small piece).

Moisture	1·46
Volatile combustible matter	3·24
Ash	6·60
Fixed Carbon	88·80
	100·00

2nd Sample (larger piece).

Moisture	1·56
Volatile combustible matter	3·14
Ash	6·60
Fixed Carbon	88·60
	100·00

In order to make the analysis more complete in the second one, tests were applied for sulphur and the component parts of the ash were ascertained. The sulphur as you will perceive exists in very small qantities, less than one-third of one per cent, and the ash is just the same as any other anthracite ash.

In addition to the advantages of geographical position, accessibility and undoubted excellence of the fuel, its proximity to the Canadian Pacific Railroad is another which can scarcely be overestimated, and one which must tend greatly to enhance the value and importance of this coal field. So far as yet known, it is the only deposit of anthracite in the North-West Territories, and although, as the work of exploration continues to be carried into the more distant troughs and recesses of the Rockies, other and similar deposits may be found, still it is highly improbable. Even if such discoveries should be made, that at least for some time to come they cannot be made available simply on account of their inaccessibility and the great outlay requisite to bring the coal within reach of railway communication. A great deal more might be said on the subject; but I consider it would be superfluous.

Professor Donald's anlyses have been most carefully made, and they speak for themselves, and go to prove conclusively, that the Cascade River coal is entitled to rank among the best and most valuable of the "Anthracite."

Respectfully yours,
A. MACKENZIE, C. E.

TRANSPORTATION.

CANADIAN PACIFIC RAILWAY COMPANY,
OFFICE OF THE VICE-PRESIDENT,
MONTREAL, 8th October, 1884.

MCLEOD STEWART, ESQ.

DEAR SIR,

Enclosed I send you a copy of my letter to Mr. Cameron regarding coal rates, which have been approved by our Board of Directors.

Replying to your telegram of yesterday, I will say that we will execute a formal agreement, if necessary for your purposes.

Yours truly,
W. C. VANHORNE,
Vice-President.

CANADIAN PACIFIC RAILWAY,
OFFICE OF THE VICE-PRESIDENT,
MONTREAL, October 8th, 1884.

DEAR SIR,

I beg to enclose this schedule of rates on coal from your proposed coal mines near Banff Station, which I trust will prove satisfactory.

With regard to a track connecting your lines with our main lines, I have to say that our rules do not admit of the construction of private tracks outside of our right of way, but if your company will prepare the necessary roadway for the track, we will furnish the rails, ties and fastenings, and put them in place at absolute cost, and we will rebate to your company 10 per cent. of your freight bills on coal shipments until this outlay is returned to you.

Yours truly,
W. C. VANHORNE,
Vice-President.

RATES *on Coal from Banff Station—Canadian Pacific Railway, 919 miles west of Winnipeg.*

Distances.	Rates per ton.
10 miles or under	$1 00
15 "	1 10
20 "	1 20
25 "	1 25
30 "	1 30
35 "	1 35
40 "	1 40
45 "	1 45
50 "	1 50
55 "	1 55
60 "	1 60
65 "	1 65
70 "	1 70
75 "	1 75
80 "	1 80
85 "	1 85
90 "	1 90
95 "	1 95
100 "	2 00
110 "	2 05
120 "	2 10
130 "	2 20
140 "	2 25
150 "	2 30
160 "	2 35
170 "	2 40
180 "	2 50
190 "	2 55
200 "	2 60
210 "	2 70
220 "	2 75
230 "	2 80
240 "	2 90
250 "	2 95
260 "	3 00
270 "	3 10
280 "	3 15
290 "	3 25
300 "	3 30
310 "	3 40
320 "	3 45
330 "	3 60
340 "	3 60
350 "	3 65
360 "	3 70
370 "	3 80
380 "	3 85
390 "	3 95

RATES *on Coal, &c.*,—Concluded.

Distances.	Rate per Ton.
400 miles or under	4 00
410 "	4 10
420 "	4 20
430 "	4 30
440 "	4 40
450 "	4 45
460 "	4 55
470 "	4 65
480 "	4 70
490 "	4 80
500 "	4 90
525 "	5 10
550 "	5 30
575 "	5 50
919 miles to Winnipeg	5 50

The foregoing schedule of rates encourages the shipment of coal to distant points. The new provinces of Manitoba, Assiniboia and Alberta, comprise an immense region of both flat and rolling prairie, of grassy plains and magnificent rivers, having a soil capable of both husbandry and herding, as is proven to-day by thousands of new farms where so recently prevailed the wild monotony of nature. Into this unmeasured domain, nearly 2,000 miles in length, east and west, by at least 600 in width, north of the 49th parallel (the international boundary) are coming with the facilities of this new trans-continental railway now being constructed, hundreds and thousands of the more hardy populations of Northern latitudes of Ontario, Quebec, Northern Europe, and also from the Northern United States, already accustomed to long winter terms. To these—the coming multitudes—nothing can so firmly establish them in their new homes as the positive assurance of an unfailing supply of the best quality of coal, at such low rates as will partially compensate for the severity of winter, and also enable the emigrant farmer to overcome the adversities of pioneer life.

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